

## REMARKS

### I. STATUS OF THE CLAIMS

Claim 24 is canceled herein.

Therefore, it is respectfully submitted that claims 1-23 and 25-35 are currently pending. Of these, claims 11-19 and 25 are allowed.

### II. OBJECTION TO THE DRAWINGS

The Examiner asserts that the "detection result transmitter" of claims 5 and 30 is not shown in the figures. However, it is respectfully submitted that such features are disclosed, for example, by the operations of CPU 164 and control signal circuit 165 in FIG. 15. See, for example, page 51, line 7, through page 52, line 6, of the specification.

The Examiner asserts that the "stopper" and the "detection result transmitter" of claims 6 and 31 are not shown in the figures. The "stopper" is disclosed, for example, by the operation of CPU 164 in FIG. 15, and referred to in the specification as CPU 164-b with respect to embodiments stopping pump light. See, for example, page 52, lines 13-17, of the specification. See page 52, lines 2-4, of the specification, for an explanation for the notion 164-b as used in the specification. The "detection result transmitter" of claims 6 and 31 is disclosed, for example, by the operation of CPU 164 and control signal circuit 165 in FIG. 15. See, for example, page 51, line 7, through page 52, line 6, of the specification.

The Examiner asserts that the "stopper" of claims 7-10 and 32-35 are not shown in the drawings. As should be understood from the above comments, a "stopper" as recited in the claims is disclosed by the operation of CPUs in various of the figures and the corresponding portions of the specification. As one example, see CPU 188 in FIG. 16, and the corresponding disclosure on page 57, lines 18-20, of the specification.

In view of the above, it is respectfully requested that the objection be withdrawn.

### III. REJECTION OF CLAIMS 5, 6, 30 AND 31 UNDER 35 USC 112, SECOND PARAGRAPH

With respect to claims 5, 6, 30 and 31, the Examiner asserts that it is unclear where a "detection result transmitter" is located.

Claims 5, 6, 30 and 31 are amended herein to recite that the detection result transmitter is provided in a same station as the residual light detector.

In view of the above, it is respectfully submitted that the objection is overcome.

### IV. REJECTION OF CLAIMS 1-4, 20, 22-24 AND 26-29 UNDER 35 USC 103 AS BEING UNPATENTABLE OVER KAWAKAMI IN VIEW OF GRUBB

Claim 1 is amended herein to recite a controller centrally controlling settings of the first and second wavelengths through communication lines to the first and second pump light sources, to reduce the gain tilt. Therefore, generally, claim 1 is amended to include the features of claim 24, and claim 24 is canceled. Claim 1 is also amended to recite that the controller controls the setting of the first and second wavelengths in a repeating, sequential order. Support for the amendments to claim 1 is found, for example, on page 15, lines 1-12, of the specification.

It is respectfully submitted that none of the references, taken individually or in combination, discloses or suggests such features.

Although the above arguments are specifically directed to claim 1, it is respectfully submitted that the arguments would be helpful in understanding various differences of various rejected claims over the cited references.

\* \* \*

Claim 20 relates to a method for supplying pump light used for Raman amplification in an optical transmission line, comprising (a) a first step of supplying pump light having a first optical power to said optical transmission line; (b) a second step of detecting optical power of light Raman-amplified by said pump light having said first optical power; (c) a third step of supplying pump light having a second optical power larger than said first optical power, to said optical transmission line; (d) a fourth step of detecting optical power of light Raman-amplified by said pump light having said second optical power; and (e) a fifth step of giving a warning about anomaly occurring at a supplying destination of said pump light when a comparison result between detection results of the second step and the fourth step is within a predetermined range.

The Examiner asserts that such operation is shown in column 6, lines 57-66, and column 4, lines 10-17, of Grubb. These portions of Grubb indicate that the pump light energy can be dynamically varied to produce a controlled signal intensity variation profile over the signal wavelength range. However, it is respectfully submitted that these portions of Grubb do not disclose or suggest supplying and detecting different pump lights at different optical powers, and giving a warning when a comparison result between detection results is within a predetermined range. For example, the cited portions of Grubb do not disclose or suggest any type of comparison of detected pump light powers of different pump lights. Moreover, the cited portions of Grubb do not disclose or suggest that any type of warning is given.

\* \* \*

Claim 22 recites (a) supplying a first pump light at a predetermined value to an optical transmission line, the first pump light exciting an optical signal having a first wavelength band; (b) detecting optical power of the optical signal having the first wavelength band; (c) detecting optical power of an optical signal having a second wavelength band different from the first

wavelength band; and (d) adjusting a second pump light so that both detection results fall within a predetermined fixed range, wherein the second pump light excites the optical signal having the second wavelength band.

It is respectfully submitted that neither Kawakami nor Grubb discloses or suggests adjusting a second pump light so that detection results fall within a predetermined fixed range, as recited, for example, in claim 22.

\* \* \*

In view of the above, it is respectfully submitted that the rejection is overcome.

V. REJECTION OF CLAIM 21 UNDER 35 USC 103 AS BEING  
UNPATENTABLE OVER KAWAKAMI IN VIEW OF GRUBB AND FURTHER  
IN VIEW OF WU

The present invention as recited, for example, in independent claim 20 (from which rejected claim 21 depends), relates to (a) supplying pump light having a first optical power to an optical transmission line; (b) detecting optical power of light Raman-amplified by the pump light having said first optical power; (c) supplying pump light having a second optical power larger than said first optical power, to the optical transmission line; (d) detecting optical power of light Raman-amplified by the pump light having the second optical power; and (e) giving a warning about anomaly occurring at a supplying destination of the pump light when a comparison result between detection results is within a predetermined range.

Wu discloses that pump light is shut off in response to a change in a supervisory signal transmitted from a supervisory source, to shut off the pump light in the event of a fiber cut. See, for example, FIG. 1, and the disclosure in column 4, line 28, through column 5, line 36, of Wu.

None of the references disclose or suggest that pump light for Raman amplification are supplied at different optical powers, and that a warning is given when a comparison result of detected powers of Raman-amplified light is within a predetermined range.

In view of the above, it is respectfully submitted that the rejection is overcome.

VI. REJECTION OF CLAIMS 5-9 AND 3-34 UNDER 35 USC 103 AS BEING  
UNPATENTABLE OVER KAWAKAMI IN VIEW OF GRUBB AND FURTHER  
IN VIEW OF KOSAKA

The above comments for distinguishing over the various references also apply here,  
where appropriate.

VII. CONCLUSION

In view of the above, it is respectfully submitted that the application is in condition for  
allowance and a Notice of Allowance is earnestly solicited.

If any further fees are required in connection with the filing of this response, please  
charge such fees to our Deposit Account No. 19-3935.

Respectfully submitted,

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